

WHAT IS CLAIMED IS:

1. A headphone system, comprising:

a headphone; and

a signal processing circuit for outputting an acoustic signal to the headphone,

wherein the headphone includes:

a first speaker and a third speaker for a right ear of a listener,

a second speaker and a fourth speaker for a left ear of the listener, and

a support for supporting the first through fourth speakers so that the first and second speakers are located forward with respect to a vertical plane including a straight line connecting the hole of the right ear and the hole of the left ear of the listener, the third and fourth speakers are located rearward with respect to the vertical plane, and the first through fourth speakers are out of contact with the right ear and the left ear of the listener.

2. A headphone system according to claim 1, wherein the signal processing circuit outputs an acoustic signal, for causing the listener to recognize a front sound source located forward with respect to the listener, to the first and second speakers.

3. A headphone system according to claim 1, wherein the signal processing circuit outputs an acoustic signal, for causing the listener to recognize a rear sound source located rearward with respect to the listener, to the third and fourth speakers.

4. A headphone system according to claim 1, wherein the signal processing circuit outputs, among acoustic signals for causing the listener to recognize a rear sound source, acoustic signals having a frequency of a prescribed frequency  $f_i$  or lower to the first and second speakers, and outputs acoustic signals having a frequency of the prescribed frequency  $f_i$  or higher to the third and fourth speakers.

5. A headphone system according to claim 1, wherein the signal processing circuit outputs, among acoustic signals for causing the listener to recognize a front sound source, acoustic signals having a frequency of a prescribed frequency  $f_i$  or higher to the first and second speakers, and outputs acoustic signals having a frequency of the prescribed frequency  $f_i$  or lower to the third and fourth speakers.

6. A headphone system according to claim 1, wherein the first and second speakers are located rearward with respect to a vertical plane including a straight line connecting a right eye and a left eye of the listener.

7. A headphone system according to claim 1, wherein the third speaker is located so that an angle between a straight line straight ahead direction of the listener and a vertical line running through the center of a front surface of the third speaker is in the range of about 100 degrees to about 120 degrees, and the fourth speaker is located so that an angle between the straight line in the straight ahead direction of the listener and a vertical line running through the center of a front surface of the fourth speaker is in the range of about 100 degrees to about 120 degrees.

8. A headphone system according to claim 1, wherein the headphone further includes a low frequency-dedicated speaker for reproducing only audio signals in a low frequency band.

9. A headphone system according to claim 8, wherein the low frequency-dedicated speaker is located in the vicinity of a rear part of the head of the listener, when the headphone is worn.

10. A headphone system according to claim 8, wherein the low frequency-dedicated speaker is located in the vicinity of the top of the head of the listener, when the headphone is worn.

11. A headphone system according to claim 1, wherein the headphone further includes a vibration unit for vibrating based on a dedicated low frequency band signal used for reproducing only audio signals in a low frequency band, and the vibration unit is supported so as to be in close contact with a temporal region of the head of the listener, when the headphone is worn.

12. A headphone system according to claim 1, wherein:

the support includes a first supporting member for supporting the first and third speakers and a second supporting member for supporting the second and fourth speakers,

the third speaker and the first supporting member are connected through a first connecting portion so that the third speaker is rotatable about the first connecting portion, and

the fourth speaker and the second supporting member are connected through a second connecting portion so that the fourth speaker is rotatable about the second connecting portion.

13. A headphone system according to claim 1, wherein:

the headphone further includes a first reflection plate for reflecting sound radiating from the third speaker and a second reflection plate for reflecting sound radiating from the fourth speaker,

the third speaker is located so that a surface of a diaphragm of the third speaker includes a straight line connecting the hole of the right ear of the listener and the center of the third speaker, and the sound radiating from the third speaker and reflected by the first reflection plate reaches the right ear of the listener, and

the fourth speaker is located so that a surface of a diaphragm of the fourth speaker includes a straight line connecting the hole of the left ear of the listener and the center of the fourth speaker, and the sound radiating from the fourth speaker and reflected by the second reflection plate reaches the left ear of the listener.